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Dr. Bache announced the decease of Baron Larrey, a member of this Society, on the 24th of July, 1842, aged seventy-six.

On motion of Dr. Patterson, Mr. Kuhn was appointed on the Committee of Finance, to fill the vacancy caused by the death of Mr. Nicklin.

Stated Meeting, October 7.

Present, twenty-nine members.

MR. DU PONCEAU, President, in the Chair.

Letters were read:—

From Mr. Petty Vaughan, dated London, 2d Sept. 1842, acknowledging the honour done him by his election as a member of this Society:—

From the Zoological Society of London, dated 2d July, 1842, and the Linnean Society of London, dated 18th July, 1842, severally acknowledging the reception of copies of the Transactions and Proceedings of this Society:—

From the Society of Antiquaries of London, dated 21st June, 1842, announcing the transmission of the twenty-ninth volume of the Archæologia:—

From Major Graham, dated Washington, 28th August, 1842, presenting a series of maps and charts, illustrating the demarcation of a portion of the boundary between the United States and Texas, and a chart of the entrance of the river Sabine:—

From Mr. William Cogswell, Corresponding Secretary of the Northern Academy of Arts and Sciences, of Hanover, N. H. dated 18th Dec. 1841, requesting the donation of the publications of this Society:—and

From Colonel Todd, American minister at St. Petersburg, dated 13th April, 1842, enclosing a letter received by him from his Excellency Count Cancrine, Minister of Finances of Russia, placing at Colonel Todd's disposal, two copies of Kupffer's work on weights and measures, one of which he presents to this Society.

On motion, the Society directed that a copy of the Proceed-

ings be regularly sent to the Academy of Arts and Sciences at Hanover, and that acknowledgments be made by the Secretary to Colonel Todd and Count Cancrine for the donation, received this evening, of Kupffer's work on Weights and Measures.

The following donations were announced:—

FOR THE LIBRARY.

Travaux de la Commission pour fixer les Mesures et les Poids de l'Empire de Russie. Rédigés par A. Th. Kupffer, Membre de cette Commission et Académicien. Two volumes, quarto, with a folio volume of Plates. St. Petersburg, 1841.—*From his Excellency Count Cancrine, Russian Minister of Finances, through Colonel Todd, American Minister at St. Petersburg.*

Archæologia, or Miscellaneous Tracts relating to Antiquity. Published by the Society of Antiquaries of London. Vol. XXIX. 4to. London, 1842.—*From the Society.*

The Transactions of the Linnean Society of London. Vol. XIX. Part I. 4to. London, 1842.—*From the Society.*

List of the Linnean Society. 1842.—*From the Society.*

Proceedings of the Linnean Society. No. 14.—*From the Society.*

Proceedings of the Geological Society of London. Nos. 77 to 83 inclusive.—*From the Society.*

Proceedings of the Royal Society. No. 54.—*From the Society.*

Astronomical and Magnetical and Meteorological Observations, made at the Royal Observatory, Greenwich, in the Year 1840: under the direction of George Biddell Airy, Esq. M.A., Astronomer Royal. 4to. London, 1842.—*From the Royal Society.*

Transactions of the Zoological Society of London. Vol. III. Part I. 4to. London, 1842.—*From the Society.*

Proceedings of the Zoological Society of London. Nos. 96 to 107 inclusive. 8vo. London, 1841.—*From the Society.*

Reports of the Council and Auditors of the Zoological Society of London, April 29, 1842. London, 1842.—*From the Society.*

Transactions of the Society instituted at London for the Encouragement of Arts, Manufactures and Commerce. Vol. LIII. Part II. 8vo. London, 1841.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Nos. 15 & 16. 8vo. Philadelphia, 1842.—*From the Academy.*

Ueber die Lais, Sequenzen und Leiche. Ein Beitrag zur Geschichte der Rhythmischen formen und Singweisen der Volkslieder und

- der Volksmässigen Kirchen-und Kunstlieder im Mittelalter. Von Ferdinand Wolf. 8vo. Heidelberg, 1841.—*From the Author.*
- Notice sur l'Eurypterus de Podolie et le Chirotherium de Livonie, par G. Fischer de Waldheim, Dr. en Philosophie, etc. 4to. Moscow, 1839.—*From the Author.*
- The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. New Series. No. 8. For October, 1842. 8vo. Philadelphia, 1842.—*From the Editor.*
- Académie Royale des Sciences. Rapport sur un Mémoire de M. Costa, etc. 4to. Paris, 1826.—*From Mr. D. B. Warden.*
- Académie Royale des Sciences. Rapport sur un Mémoire de M. Sérullas, etc. 4to. Paris, 1829.—*From the same.*
- Académie Royale des Sciences. Exposé des Recherches pour déterminer les Forces élastiques de la Vapeur d'Eau à de hautes Températures. 4to. Paris, 1830.—*From the same.*
- Académie Royale des Sciences. Rapport sur un Mémoire de M. le Baron de Morogues, etc. 4to. Paris, 1832.—*From the same.*
- Comparaison des Formes cristallines de la Strontiane carbonatée avec celles de l'Arragonite. Par M. Haüy. 4to. Paris.—*From the same.*
- Nouvelles Observations sur la Faculté conservatrice de l'Électricité acquise à l'aide du Frottement. Par M. Haüy. 4to. Paris.—*From the same.*
- Observations sur la Simplicité des Lois auxquelles est soumise la structure des Cristaux. Par M. Haüy. Paris.—*From the same.*
- Description d'une Nouvelle Variété d'Amphibole. Par M. Haüy. 4to. Paris.—*From the same.*
- Sur les Cymophanes des États-Unis. Par M. Haüy. Paris.—*From the same.*
- Sur l'Usage des Caractères physiques des Minéraux, pour la distinction des Pierres précieuses qui ont été taillées. Par M. Haüy. 4to. Paris.—*From the same.*
- Institut Royal de France. Annuaire, 1842. 12mo. Paris, 1842. *From the same.*
- Expédition au Pôle Antarctique des Corvettes l'Astrolabe et la Zélée, sous le Commandement de M. Dumont d'Urville. 8vo. Paris, 1840.—*From the same.*
- Rapport sur les Travaux de la Société Royale et Centrale d'Agriculture, depuis sa Séance publique de 26 Avril, 1841. Par M. Soulange Bodin. 8vo.—*From the same.*
- De la Plantation du Melèze (*Pinus larix*), d'après des Observations faites en Ecosse. 8vo.—*From the same.*

Conseils aux Nouveaux Éducateurs de Vers à Soie. Par M. Frédéric de Boullenois. 8vo. Paris, 1842.—*From the same.*

Rapport sur une Proposition faite au Gouvernement par M. de Lasteysrie. Par le Secrétaire perpétuel, G. Cuvier. 1er Février, 1813. Folio.—*From the same.*

A lithographic plate, entitled "Mosaique découverte le 24 Octobre, 1831, dans une Maison de Pompéi, dite la Maison du Faune."—*From the same.*

Map of the River Sabine from Logan's Ferry to 32d degree of North Latitude, showing the Boundary between the United States of America and the Republic of Texas between said Points.—*From Major Graham, U. S. Topog. Engineers.*

Part of the Boundary between the United States and Texas, from Sabine River, northward, to the 36th mile Mound.—*From the same.*

Part of the Boundary between the United States and Texas, North of Sabine River, from the 39th to the 72d mile Mound.—*From the same.*

Part of the Boundary between the United States and Texas, North of Sabine River, from the 72d mile Mound to Red River.—*From the same.*

Sabine Pass, and Mouth of the River Sabine in the Sea. Surveyed, under the direction of Major J. D. Graham, U. S. Topog. Engineers, by Lieut. T. J. Lee, Topog. Engineers, and Capt. P. J. Pillans, Texan Army.—*From the same.*

Map of the River Sabine, from its Mouth on the Gulf of Mexico, in the Sea, to Logan's Ferry, in Latitude $31^{\circ} 58' 24''$ north. Showing the Boundary between the United States and the Republic of Texas.—*From the same.*

Mr. Kane, pursuant to the order of the Society at its last meeting, presented an obituary notice of the Hon. Isaac Rand Jackson.

Mr. Jackson was born at Newburyport, Massachusetts, where his family had resided for many years. After receiving an education in the public schools of Massachusetts, to which he added largely by assiduous private study, he engaged for a short time in merchandise. His health, however, led him to visit Europe soon after he had reached manhood, and he spent some years there in the cultivation of the refined tastes by which he was afterwards distinguished. On his return, he studied law under Chief Justice Cranch of the District of Co-

lumbia, and was admitted to the bar of Washington and that of Philadelphia.

But the law was for him an accomplishment, rather than a profession. He devoted himself more fully to general science and elegant literature, and found congenial relaxation in the study of the arts. An ample fortune facilitated these pursuits. He surrounded himself with choice pictures and statuary, a fine cabinet of medals and coins, a collection of minerals more extensive perhaps in the number of specimens than any other in the United States, and an exceedingly valuable library.

He was not, however, a mere collector. His books, though remarkable some of them for their antiquity and rarity, were not things for show. To the standards of English and continental literature, he added all the latest productions of value as they issued from the press: he received these regularly, and sifted them himself before assigning them a place on his shelves. The descriptive catalogue of his minerals, which includes more than 12,000 specimens, classified upon the basis of Cleaveland's system, each compared with the original type and its characteristics indicated, is a monument of his scientific labour. The preparation of it engaged his leisure, between midnight and two o'clock, for several years.

Indeed, all his habits showed the man of regulated industry. Almost engrossed occasionally by the cares of his estate during the day,—sharing zealously and effectively in the political discussions of the times,—mastering successively the French, Italian, Spanish, and German languages,—and keeping himself in the advance among the students of natural science,—he had always his hours of leisure for an enlarged correspondence, and for ample hospitality.

He became a member of the Society in April, 1841. He had shortly before accepted from General Harrison the post of *Chargé d'Affaires* at Copenhagen, and in August of that year he sailed for Denmark. He had scarcely become domiciliated in his diplomatic residence, and was just renewing some researches which he had begun at home into the antiquities of the North, when death met him on the 27th of July, 1842, at the early age of thirty-seven.

Dr. Patterson read a paper on the “Integration of Irrational Functions, by Pike Powers,” which was referred to a Committee.

A paper, consisting of extracts from a mathematical commonplace book, was read, and referred to a Committee.

Dr. Hare communicated to the Society, a summary of his objections to the arguments in favour of the existence, in the amphoteric salts, of compound radicals analogous to cyanogen.

Dr. Hare stated, that the success which had been conceived to attend the inferences lately made, respecting the existence of compound radicals in various interesting organic substances, had led some distinguished chemists to suppose that the salts heretofore believed to consist of acids and bases, might consist of a compound halogen body or "salt radical," with a metal or with hydrogen.

Having given to the facts and arguments advanced in favour of this new doctrine the most sedulous consideration, Dr. Hare declared himself to have arrived at the conviction that it was susceptible of being refuted.

Accordingly, he had prepared an essay which it was hoped would be found to justify the view of the question which he had taken. He did not, however, deem it proper to take up the time of the Society by entering into the subject fully in a verbal communication; he would only submit a summary of the opinions which he hoped to justify in the essay which he intended to publish.

(a) The community of effect, as respects the extrication of hydrogen by contact of certain metals with aqueous solutions of sulphuric and chlorohydric acid, is not an adequate ground for an inferred analogy of composition; since it must inevitably arise that any radical will, from any compound, displace any other radical, when the forces favouring its substitution preponderate over the quiescent affinities:—

(b) But if, nevertheless, it be held that the evolution of hydrogen from any combination, by contact with a metal, is a sufficient proof of the existence of a halogen* body, simple or compound, in the combination, the evolution of hydrogen from water, by the contact with any metal of the alkalies, must prove oxygen to be a halogen body; also the evolution of hydrogen from sulphydric, selenhydric, or tellurhydric acids, by similar means, would justify an inference that sulphur, selenium and tellurium, as well as oxygen, belong to the halogen or salt radical class:—

(c) The amphigen bodies being thus proved to belong to the halogen class, oxides, sulphides, selenides, and tellurides, would be haloid salts, and their compounds double salts, instead of consisting of a compound radical and a metal:—

* The epithet halogen is applied to bodies whose binary compounds with metals are deemed salts, and which are consequently called haloid salts.

(*d*) The argument in favour of similarity of composition in the haloid and amphide salts,* founded on a limited resemblance of properties in some instances, is more than counterbalanced by the extreme dissimilitude in many others:—

(*e*) As, in either class, almost every property may be found which is observed in any chemical compound, the existence of a similitude, in some cases, might be naturally expected:—

(*f*) As it is evident that many salts, perfectly analogous in composition, are extremely dissimilar in properties, it is not reasonable to consider resemblance in properties, as a proof of analogy in composition:—

(*g*) No line of distinction, as respects either properties or composition, can be drawn between the binary compounds of the amphigen and halogen bodies, which justifies that separate classification which the doctrine requires; so that it must be untenable as respects the one or be extended to the other:—

(*h*) The great diversity, both as respects properties and composition of the bodies called salts, rendering it impossible to define the meaning of the word, any attempt to vary the language and theory of Chemistry, in reference to the idea of a salt, must be extremely pernicious:—

(*i*) There is at least as much mystery in the fact that the addition of an atom of oxygen to an oxacid, should confer an affinity for a simple radical, as that the addition of an atom of this element to such a radical, should create an affinity between it and an oxacid:—

(*j*) If one atom of oxygen confer upon the base into which it enters, the power to combine with one atom of acid, it is quite consistent that the affinity should be augmented, proportionably, by a further accession of oxygen:—

(*k*) It were quite as anomalous, mysterious, and improbable, that there should be three oxyphosphions, severally requiring for saturation one, two, and three atoms of hydrogen, as that three isomeric states of phosphoric acid should exist, requiring as many different equivalents of basic water:—

(*l*) The attributes of acidity alleged to be due altogether to the presence of basic water, are not seen in hydrated acids, when holding water in that form only; nor in such as are, like the oily acids, inca-

* An amphide salt is one consisting of an acid and a base, each containing an amphigen body, either oxygen, sulphur, selenium, or tellurium, as its electro-negative ingredient.

pable of uniting with water as a solvent. Further, these attributes are admitted to belong to salts which, not holding water as a base, cannot be hydrurets or hydracids of any salt radical: and while such attributes are found in compounds which, like chromic and carbonic acid, cannot be considered as hydrurets, they do not exist in all that merit this appellation, as is evident in the cases of prussic acid and oil of bitter almonds:—

(*m*) It seems to have escaped attention, that if SO^4 be the oxysulphion of sulphates, SO^3 , anhydrous sulphuric acid, must be the oxysulphion of the sulphites; and that there must, in the hyposulphites and hyposulphates, be two other oxysulphions!—

(*n*) The electrolytic experiments of Daniell have been erroneously interpreted; since the electrolysis of the base of sulphate of soda would so cause the separation of sodium and oxygen, that the oxygen would be attracted to the anode, the hydrogen and soda being *indirectly* evolved by the reaction of sodium with water; while the acid deprived of its alkaline base, would be found at the anode in combination with basic water, without having been made to act in the capacity of an anion:—

(*o*) The copper, in the case of a solution of the sulphate of this metal and a solution of potash, separated by a membrane, would, by electrolyzation, be evolved by the same process as sodium, so long as there should be copper to perform the office of a cathion; and when there should no longer be any copper to act in this capacity, the metal of the alkali, or hydrogen of water, on the other side of the membrane, would act as a cathion; the oxygen acting as an anion from one electrode to the other, first to the copper, and then to the potassium:—

(*p*) The allegation that the copper was deposited from the want of an anion (oxysulphion) to combine with, is manifestly an error; since, had there been no anion, there could have been no discharge, as alleged, to hydrogen as a cathion, nor any electrolysis:—

(*q*) The hydrated oxide precipitated on the membrane came from the reaction of the alkali with the sulphate of copper; the precipitated oxide of this metal from the oxygen of the soda acting as an anion; and the deposit of metallic copper from the solutions performing, feebly, the part of electrodes, while themselves the subjects of electrolyzation:—

(*r*) The so called principles of Liebig,* by which his theory of

* *Traité de Chimie Organique*, tom. 1, page 7.

organic acids is preceded, are mainly an inversion of the truth ; since they make the capacity of saturation of hydrated acids dependent on the quantity of hydrogen in their basic water, instead of making both the quantity of water, and, of course, the quantity of hydrogen therein, depend on their capacity :—

(s) All that is truly said of hydrogen would be equally true of any other radical ; while the language employed, would lead to the belief that there is a peculiar association between capacity of saturation, and the presence of hydrogen.

Prof. Bache drew the attention of the Society to the necessity of providing means for continuing the observations now making under the direction of the Society at the Magnetic Observatory, or of closing the Observatory: whereupon, on motion of Dr. Patterson, a special Committee was appointed, to report in regard to providing means for the continuation of the observations. Committee, Dr. Chapman, Dr. Patterson, Dr. Wood, Mr. Fraley, and Mr. Kane.

On motion of Mr. F. Peale, permission was granted to Mr. Justice, to have casts made from certain medals in the cabinet of the Society, under the direction of the Curators.

Stated Meeting, Oct. 21.

Present, thirty-nine members.

Mr. Du Ponceau, President, in the Chair.

Letters were read:—

From Fletcher Webster, Esq. Acting Secretary of State, dated Washington, 7th Oct. 1842, announcing the transmission to the Society of a number of volumes of Public Documents:—

From the Secretary of the Imperial Society of Naturalists of Moscow, dated 13th July, 1842, announcing that the Bulletin of the Moscow Society for 1842, had been forwarded to this Society:—

From the Secretary of the Botanical Society of London, dated 1st July, 1842, and the Secretary of the Royal Geographical Society of London, dated 12th Jan. 1842, severally ac-